

Table B-5. Survey of Industrial Research and Development--imputation rates for survey items, by industry and by size of company: 1999

Page 1 of 4

Industry and size of company	NAICS codes	Net sales	Total employment	R&D scientists/engineer	Total R&D			R&D costs by agency				R&D by type of cost				Company R&D		Energy R&D
					Total	Com-pany	Federal	DoD	NASA	DOE	Other agencies	Wages	Materials	Deprecia-tion	Other costs	Contracted out R&D	Foreign R&D	
[Percent]																		
Distribution by industry:																		
All industries.....	21-23, 31-33, 42, 44-81	8.6	6.9	32.2	6.6	6.0	11.3	70.3	63.7	38.3	48.4	50.7	54.7	9.2	59.8	7.4	5.3	4.5
Manufacturing.....	31-33	12.1	7.7	41.8	7.6	6.7	12.2	69.7	58.4	34.9	43.5	56.3	58.1	10.2	65.2	12.3	6.4	4.3
Food.....	311	12.0	11.5	37.5	13.3	13.3	0.0	0.0	0.0	0.0	0.0	58.6	61.4	18.2	56.4	0.0	0.0	0.0
Beverage and tobacco products.....	312	0.0	0.0	23.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Textiles, apparel, and leather.....	313-16	9.6	8.0	11.8	31.9	31.9	0.0	0.0	0.0	0.0	0.0	54.9	60.6	0.0	68.6	0.0	0.0	0.0
Wood products.....	321	0.0	0.0	22.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.2	13.4	0.0	18.8	0.0	0.0	0.0
Paper, printing and support activities....	322, 323	14.8	17.7	54.5	32.4	31.1	99.5	0.0	0.0	99.5	99.5	65.6	55.3	2.7	44.2	0.0	2.8	0.0
Petroleum and coal products.....	324	0.0	0.0	25.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.8	20.6	0.0	15.6	0.0	0.0	0.0
Chemicals.....	325	9.4	8.3	39.4	8.5	8.0	20.1	93.2	100.0	91.9	93.8	56.5	62.3	12.4	61.2	14.1	15.9	0.0
Basic chemicals.....	3251	4.0	4.3	34.9	7.1	7.3	3.3	92.7	0.0	0.0	94.1	57.2	42.1	0.0	34.0	10.6	14.9	0.0
Resin, synthetic rubber, fibers, and filament.....	3252	1.9	9.9	21.7	5.4	0.0	38.1	100.0	100.0	100.0	0.0	31.8	36.2	3.2	34.1	19.1	0.0	0.0
Pharmaceuticals and medicines.....	3254	22.7	14.0	38.3	11.0	10.8	91.3	0.0	0.0	91.5	90.8	57.0	69.4	20.9	62.5	14.4	17.7	0.0
Other chemicals.....	325 (minus 3251-52, 3254)	4.6	5.0	53.5	1.5	2.9	0.0	93.4	0.0	0.0	93.4	73.1	71.0	7.9	85.9	0.2	0.1	0.0
Plastics and rubber products.....	326	8.2	8.7	43.8	3.9	3.9	0.0	0.0	0.0	0.0	0.0	69.9	75.1	19.7	67.4	0.0	1.0	0.0
Nonmetallic mineral products.....	327	0.0	0.0	49.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.5	24.5	8.9	47.9	0.0	0.0	0.0
Primary metals.....	331	3.1	3.4	67.4	6.2	6.3	0.0	0.0	0.0	0.0	0.0	33.1	27.3	9.1	54.5	6.3	0.0	0.0
Fabricated metal products.....	332	3.9	3.6	26.1	4.6	4.7	0.0	76.3	12.0	67.5	0.0	68.7	67.9	0.9	64.8	24.8	11.7	0.0
Machinery.....	333	5.5	6.7	29.9	24.7	10.5	81.2	94.5	99.2	80.7	98.8	32.8	33.3	15.1	40.3	0.6	2.4	54.6
Computer and electronic products.....	334	11.0	11.3	55.2	6.5	7.7	5.7	96.9	96.3	45.5	82.3	64.9	73.8	2.4	68.3	2.4	9.0	57.5
Computers and peripheral equipment.....	3341	9.8	14.6	44.4	13.0	12.9	98.5	0.0	0.0	0.0	0.0	45.4	87.8	1.8	42.7	9.7	6.0	0.0
Communications equipment.....	3342	18.2	13.0	69.5	6.3	6.6	8.5	45.5	99.8	0.0	0.0	82.7	86.0	7.5	89.4	0.0	29.9	100.0
Semiconductor and other electronic components.....	3344	10.2	9.6	57.8	2.5	2.7	0.0	44.7	0.0	45.5	27.9	64.9	66.2	1.2	70.4	0.2	5.4	0.0

See explanatory information and SOURCE at end of table.

Table B-5. Survey of Industrial Research and Development--imputation rates for survey items, by industry and by size of company: 1999

Page 2 of 4

Industry and size of company	NAICS codes	Net sales	Total employment	R&D scientists/engineer	Total R&D			R&D costs by agency				R&D by type of cost				Company R&D		
					Total	Company	Federal	DoD	NASA	DOE	Other agencies	Wages	Materials	Depreciation	Other costs	Contracted out R&D	Foreign R&D	Energy R&D
					[Percent]													
Distribution by industry:																		
Navigational, measuring, electromedical, and control instruments.....	3345	9.0	10.5	49.2	7.2	10.5	5.6	97.3	85.0	0.0	85.5	60.9	57.4	4.7	66.9	0.0	7.1	0.0
Other computer and electronic products.....	334 (minus 3341-42, 3344-45)	13.1	13.8	29.7	16.5	26.0	0.0	0.0	0.0	0.0	100.0	34.9	51.4	0.0	45.1	0.0	0.0	0.0
Electrical equipment, appliances, and components.....	335	1.7	3.4	20.8	2.8	3.0	0.0	0.4	0.4	0.4	0.4	38.3	30.1	15.4	41.1	0.2	1.6	0.0
Transportation equipment.....	336	20.7	4.8	42.4	4.8	1.8	11.9	37.7	42.0	29.6	39.7	49.5	53.4	7.7	70.8	0.1	0.1	0.2
Motor vehicles, trailers, and parts.....	3361-63	24.9	1.6	31.4	0.3	0.3	3.1	5.6	5.6	5.7	5.6	49.4	63.6	0.0	93.9	0.0	0.1	0.0
Aerospace products and parts.....	3364	9.7	10.9	58.6	10.8	7.0	13.0	37.2	46.8	29.6	40.0	50.0	38.7	0.0	57.5	0.5	0.3	0.3
Other transportation equipment.....	336 (minus 3361-64)	0.2	0.5	34.5	0.9	2.0	0.0	48.1	100.0	0.0	100.0	43.0	37.4	92.3	58.9	0.0	0.0	0.0
Furniture and related products.....	337	0.0	0.0	48.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0	21.4	0.0	29.8	0.0	0.0	0.0
Miscellaneous manufacturing.....	339	3.3	4.0	41.5	4.4	4.4	0.0	0.0	0.0	0.0	0.6	79.7	77.8	0.0	79.5	3.8	0.3	0.0
Medical equipment and supplies.....	3391	3.6	4.1	49.2	3.9	4.0	0.0	0.0	0.0	0.0	0.6	84.8	86.1	0.0	84.9	8.3	0.4	0.0
Other miscellaneous manufacturing....	339 (minus 3391)	2.6	3.8	21.5	7.1	7.1	0.0	0.0	0.0	0.0	0.0	34.1	30.5	0.0	33.4	0.0	0.0	0.0
Other manufacturing ¹	31-33 (minus 311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Small manufacturing companies ²	Fewer than 50 employees	6.7	1.5	1.3	0.2	0.2	0.8	0.0	0.0	100.0	0.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Nonmanufacturing.....	21-23, 42, 44-81	4.6	6.1	19.0	4.9	4.7	8.3	75.3	75.6	75.1	76.8	40.9	42.7	7.2	40.2	3.4	1.6	8.1
Mining, extraction, and support activities.....	21	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	100.0	27.1	28.6	64.3	43.0	0.0	0.0	8.1
Utilities.....	22	6.8	7.7	20.6	5.8	6.5	0.0	0.0	0.0	0.0	0.0	42.1	43.2	0.0	43.6	7.7	0.0	0.0
Construction.....	23	3.8	4.2	4.2	3.4	3.4	0.0	69.6	69.6	0.0	0.0	6.0	6.2	0.0	13.0	0.0	0.0	0.0

See explanatory information and SOURCE at end of table.

Table B-5. Survey of Industrial Research and Development--imputation rates for survey items, by industry and by size of company: 1999

Page 3 of 4

Industry and size of company	NAICS codes	Net sales	Total employment	R&D scientists/engineer	Total R&D			R&D costs by agency				R&D by type of cost				Company R&D		
					Total	Company	Federal	DoD	NASA	DOE	Other agencies	Wages	Materials	Depreciation	Other costs	Contracted out R&D	Foreign R&D	Energy R&D
					[Percent]													
Distribution by industry:																		
Trade.....	42, 44, 45	9.0	16.4	15.6	3.1	2.9	33.2	69.8	69.7	0.0	69.7	33.7	40.8	4.6	24.1	1.4	0.2	0.0
Transportation and warehousing.....	48, 49	0.0	0.0	17.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.7	68.7	0.0	68.7	0.0	0.0	0.0
Information.....	51	4.7	5.7	26.1	8.4	7.1	47.4	88.8	84.1	0.0	80.8	50.5	49.3	16.5	54.6	0.8	0.5	0.0
Publishing.....	511	14.2	13.5	20.4	8.6	8.6	17.1	76.8	49.2	0.0	49.2	57.0	42.9	10.2	59.0	2.3	1.0	0.0
Newspaper, periodical, book, and database.....	5111	28.5	15.1	18.4	28.5	28.5	0.0	0.0	0.0	0.0	0.0	55.4	24.8	0.0	65.1	44.4	0.0	0.0
Software.....	5112	10.0	12.5	20.5	7.9	7.9	17.1	76.8	49.2	0.0	49.2	57.0	44.3	10.4	58.9	1.8	1.0	0.0
Broadcasting and telecommunications.....	513	2.5	4.1	70.9	15.1	3.3	53.7	100.0	100.0	0.0	100.0	79.2	87.6	43.1	70.2	0.0	0.0	0.0
Radio and television broadcasting.....	5131	83.4	89.5	91.5	77.6	27.8	99.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Telecommunications.....	5133	0.2	0.2	63.2	1.3	1.5	0.0	100.0	100.0	0.0	100.0	79.2	87.6	43.1	70.2	0.0	0.0	0.0
Other broadcasting and telecommunications.....	513 (minus 5131, 5133)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other information.....	51 (minus 511, 513)	0.7	0.5	12.6	1.9	2.0	0.0	0.0	0.0	0.0	0.0	3.4	1.3	12.3	4.4	0.0	0.0	0.0
Finance, insurance, and real estate.....	52, 53	9.2	17.1	24.9	5.9	5.9	0.0	0.0	0.0	0.0	0.0	56.7	19.6	0.0	42.1	11.9	58.9	0.0
Professional, scientific, and technical services.....	54	3.8	2.1	21.6	4.2	5.0	2.4	73.3	75.5	75.1	71.7	37.8	47.0	6.0	42.3	3.1	3.8	0.0
Architectural, engineering, and related services.....	5413	4.7	2.6	20.0	5.6	4.9	7.1	72.7	74.4	74.3	71.8	57.5	67.6	3.1	73.9	2.9	2.2	0.0
Computer systems design and related services.....	5415	5.0	3.5	17.0	5.7	6.2	0.0	20.7	0.0	0.0	0.0	26.0	27.7	43.5	29.2	0.0	10.1	0.0
Scientific R&D services.....	5417	5.3	1.6	25.2	3.1	4.6	0.3	75.4	79.3	75.3	76.1	37.3	41.8	3.5	37.8	3.4	1.2	0.0
Other professional, scientific, and technical services.....	54 (minus 5413, 5415, 5417)	0.2	0.2	27.7	5.8	2.6	86.0	100.0	0.0	0.0	100.0	23.1	74.2	0.0	26.7	0.0	0.0	0.0

See explanatory information and SOURCE at end of table.

Table B-5. Survey of Industrial Research and Development--imputation rates for survey items, by industry and by size of company: 1999

Page 4 of 4

Industry and size of company	NAICS codes	Net sales	Total employment	R&D scientists/engineer	Total R&D		R&D costs by agency					R&D by type of cost				Company R&D		Energy R&D
					Total	Company	Federal	DoD	NASA	DOE	Other agencies	Wages	Materials	Depreciation	Other costs	Contracted out R&D	Foreign R&D	
[Percent]																		
Distribution by industry:																		
Management of companies and enterprises.....	55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Health care services.....	621-23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other nonmanufacturing.....	56, 61, 624, 71, 72, 81	1.0	2.8	18.5	22.6	22.1	43.4	44.3	0.0	0.0	0.0	49.5	55.5	0.0	48.0	0.0	20.6	0.0
Small nonmanufacturing companies ²	Fewer than 15 employees	8.9	0.2	2.4	0.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0
Distribution by size of company: [Number of employees]																		
Total.....		8.6	6.9	32.2	6.6	6.0	11.3	70.3	63.7	38.3	48.4	50.7	54.7	9.2	59.8	7.4	5.3	4.5
5 to 24.....		6.4	1.5	7.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0	58.5	100.0	8.2	43.9	0.0	0.0	0.0
25 to 49.....		4.3	0.2	4.4	1.2	1.0	2.4	36.5	100.0	6.8	89.2	50.7	55.1	31.0	43.5	1.4	0.0	0.0
50 to 99.....		4.4	0.3	6.1	1.6	2.2	1.6	24.2	93.3	98.7	11.8	34.4	40.6	2.4	27.4	1.0	0.0	0.0
100 to 249.....		3.1	1.7	13.8	9.7	10.8	6.3	64.9	79.8	100.0	65.7	45.3	46.0	19.4	45.8	11.7	3.8	0.0
250 to 499.....		3.7	2.9	15.0	7.6	7.1	13.7	46.2	78.8	27.8	35.9	38.8	48.4	3.4	37.1	0.9	5.4	0.0
500 to 999.....		6.3	6.7	20.7	15.8	16.4	9.3	14.5	35.0	74.9	79.2	38.1	27.5	1.8	45.0	5.6	8.7	0.0
1,000 to 4,999.....		7.3	9.8	29.8	11.1	11.2	7.4	61.4	99.8	91.6	93.6	37.6	38.5	8.3	37.6	1.7	4.8	42.9
5,000 to 9,999.....		12.0	11.4	40.2	7.1	7.0	7.9	69.7	84.6	88.0	98.1	47.6	46.8	3.4	61.4	2.4	1.2	21.8
10,000 to 24,999.....		3.6	5.5	38.8	0.7	1.6	0.0	97.1	98.9	74.7	83.7	60.3	62.5	3.9	69.0	0.7	0.6	1.4
25,000 or more.....		10.7	5.6	52.0	6.5	4.4	11.7	72.5	54.3	32.3	43.7	59.1	62.1	13.6	68.4	13.0	7.2	0.0

¹ "Other manufacturing" is intentionally left blank to allow for possible future North American Industry Classification System (NAICS) expansion.

² The frame from which the statistical sample was selected was divided into two partitions based on total company employment. In the manufacturing sector, companies with employment of 50 or more were included in the large company partition. In the nonmanufacturing sector, companies with employment of 15 or more were included in the large company partition. Companies in the respective sectors with employment below these values, but with at least 5 employees, were included in the small company partition. The purpose of partitioning the sample this way was to reduce the variability in industry estimates largely attributed to the random year-to-year selection of small companies by industry and the high sampling weights that sometimes were assigned to them. Because of this, detailed industry statistics were possible only from the large company partition; detailed industry statistics from the small company partition were not possible. Statistics from the small company partition are shown separately and are included in manufacturing, nonmanufacturing, and all industries totals. For more detailed information, please see "frame creation" and "sample selection" in Section B.

KEY: -- = Indicates data not collected.

NOTE: Starting with the 1999 survey, estimates are based on the North American Industry Classification System (NAICS). In prior years, estimates were based on the Standard Industrial Classification (SIC) system. The figures in this table represent the percentage of the value in a given table cell in the Section A tables that has been imputed. In those tables, cells for which more than 50 percent of the value is imputed are flagged with an "(S)". Cells that contain 0.0 indicate that no imputation was performed or, if performed, imputation accounted for less than 0.1 percent of the estimate for the indicated item.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 1999